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ABSTRACT

A study was conducted to determine the effects of the "Cherry Hill Study Skills Program" on eighth grade students' reading comprehension and study skills. The "Cherry Hill Study Skills Program" is a process oriented course dealing with the sequential development of nine specific skills deemed essential to the retrieval and retention of information (listening, main ideas, inferences, taking notes, following directions, parts of textbooks, surveying, locating specific information, and taking tests). Sixty-four students from two eighth grade classes were chosen for the study. The experimental group consisted of 32 students who followed the Cherry Hill curriculum, while the control group was composed of 30 students who were taught using content area reading materials. The results indicated that while the Cherry Hill program did not significantly increase eighth grade students' comprehension scores, it was highly effective in increasing their study skills. (Author/FL)

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THE EFFECT OF THE CHERRY HILL STUDY SKILLS PROGRAM ON EIGHTH GRADE STUDENTS' READING COMPREHENSION AND STUDY SKILLS

by

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One of the most frequently reported problems of both high school and college students (Clemens, 1967) is that they do not know how to study. Attempts to determine the factors related to student achievement seem to be a continuing and growing concern among educators as evidenced by the multitude of studies that address problems related to the academic performance of students.

Since study skills are one of the factors associated with academic performance, it is in the interest of both students and instructional personnel, administrators, educators and counselors to provide students with instruction in effective skills.

If a student is having trouble with academic work, the chances are exceedingly great that the trouble stems from not knowing how to study, rather than from not knowing how to read.

Although students are required to study many hours each week - to read to understand and remember content in textbooks and other materials - few students have been trained to use the skills that will help them study.

Many educators in schools today are aware that students are weak in this area of reading and are trying to do something to alleviate this problem.

Robert Karlin found that in their reading programs,

elementary schools are paying increased attention to developing study skills as a contribution to reading ability and some high schools have special classes for students seeking to enter college. Others are requiring attendance in reading classes on the basis of test scores and teacher recommendations, and a few provide instruction in study skills to all students through regular classroom programs.

An important factor to note is that reading content is different from reading stories. These differences are found in the terseness of writing, numerous ideas, and unfamiliar concepts which are common to subject matter but often lacking in narration. Students need to master study skills to read content area material efficiently and retain information so that they can apply the ideas they have gained. Mastering study skills allows students to obtain information and solve problems through their own efforts.

In all the literature, there is no general agreement about what skills ought to be included in teaching study skills. Most feel that all the word recognition and comprehension skills that are used are important to students as they study. Stated in behavorial terms by Karlin (1977), students have to learn to locate information, select and evaluate information, organize and retain information, understand graphic aids, follow directions, and develop

reading flexibility.

Omitted from this list are the survey skills which permit students to learn about the content and organization of materials and establish purposes for reading them.

Many methods of approaching study skills and reading have been developed. One popular method was developed by Francis Robinson (1961), SQ3R - Survey, Question, Read, Recite, Review, used especially for social studies and science. Many other methods such as PQRST - Preview, Question, Read, Summarize, Test, developed by George Spache (1963) are very similar to SQ3R.

Walter Pauk (1963) has designed a study method EVOKER for use with prose, poetry and drama. EVOKER stands for Explore, Vocabulary, Oral reading, Key ideas, Evaluation, and Recapitulation. A special technique for studying mathematics has also been developed by Leo Fay (1965), SQRQCQ - Survey, Question, Read, Question, Compute and Question.

Two other general study methods are REAP - Read, Encode, Annotate and Ponder by Marilyn Eanet and Anthony Manzo (1976), and PANORAMA - Purpose, Adapting rate to material, Need to pose questions, Overview, Read and relate, Annotate, Memorize and Assess developed by Peter Edwards (1973).

The Cherry Hill Study Skills Program was developed by

the Cherry Hill School District and is a process-oriented, "how-to" course dealing with the sequential development of nine specific skills essential to the retrieval and retention of information by the student. The skills are: listening, main ideas, inferences, taking notes, taking tests, following directions, parts of textbooks, surveying and locating specific information.

The philosophy behind the Cherry Hill Study Skills Program according to Roland LaVoie (1980) is that if one thinks of education itself as a mixture of content (the subject area) and process (the means by which content is acquired), the reason for a study akills program becomes clear. When a child's education begins, almost everything taught is process, or "how-to", in nature, such as how to draw a square. As a child advances through the grades, content enters the picture and is stressed more and more, until by junior high almost everything taught concentrates on content. The trouble with this is that the student may never have acquired the process skills necessary to achieve mastery of the content area. The Cherry Hill Study Skills Program is, therefore, an attempt to restore a meaningful balance between process and content. That is why the course is not tied to any one content area; it is strictly a process, or "how-to"course.

Statement of the Problem

Do students in the eighth grade developmental reading program who have had training in the Cherry Hill Study Skills Program demonstrate significantly greater reading comprehension and study skills than those students who have had no such training?

Hypothesis

To provide additional evidence concerning this topic, a study was conducted to determine the effect of the Cherry Hill Study Skills Program on eighth grade students' reading comprehension and study skills. It was hypothesized that no significant difference would exist in the reading comprehension and study skills achievement between eighth grade developmental reading students who have had training in the Cherry Hill Study Skills Program and those who have had no such training.

Significance of the Problem

This study attempts to reveal whether or not eighth grade students being taught with the Cherry Hill Study Skills Program are more adept in reading comprehension and study skills than students who are being taught conventional content area reading instruction.

Definitions

Cherry Hill Study Skills Program (B Track) - Involves listening skills, finding the main idea, taking notes, taking tests, inferences, following directions, analogies, essay terms and parts of a textbook.

Limitations

One of the limitations of this study is that while a random sampling of students would be preferable, working with a random sampling of students in a public school is frequently impossible, and is so in this situation. Another limitation is that the control and the experimental samples were taught by two different teachers.

Specific Procedures

Participants in this study involved two samples of eighth grade students enrolled in a developmental reading program. The samples were matched by age, IQ, and reading levels.

The experimental sample consisted of 32 children in four classes taught study skills using the Cherry Hill Study Skills Program (B Track) while the control sample consisted of 30 children in four classes taught reading in the content area by another teacher. Instruction time consisted of fourty minute periods, five times a week for four months, from September through December.

Administration of the California Test of Basic Skills (CTBS) - Vocabulary and Comprehension Sections, Level 3, Form S, the Otis-Lennon Mental Ability Test, Intermediate Level, Form J and the Pre-test for the Cherry Hill Study Skills Program was made prior to the onset of instructional activity. These tests were administered to the two samples in the same place and at the same time. Following the testing, the experimental sample was taught using the Cherry Hill Study Skills Program (B Track) for four months while the control sample was taught reading using content area materials and the students' textbooks for an identical

time period.

At the conclusion of the Program, the CTBS - Vocabulary and Comprehension Sections, Level 3, Form T and the Cherry Hill Post-test were administered to the samples, again in the same place and at the same time.

Results

As noted in Table I, an administration of the Otis-

TABLE I

OTIS LENNON MENTAL ABILITY TEST ON THE SAMPLES

	N	Mean	SD	t
IQ Experimental	32	97.437	8.5	-.4408
IQ Control	30	97.966	7.3	

Lennon Mental Ability Test, prior to the start of the study and after development of the samples, indicated no significant difference existed between the experimental and control samples in intelligence levels.

The results of the administration of the pre-test for the California Test of Basic Skills (Form S) as shown in Table II also indicated that no significant difference

TABLE II

CALIFORNIA TEST OF BASIC SKILLS RESULTS ON THE SAMPLES

	N	Mean	SD	t
CTBS Experimental pre-test	32	53.50	10.8	-2.04
CTBS Control pre-test	30	56.766	9.2	
CTBS Experimental post-test	32	56.75	8.4	.4
CTBS Control post-test	30	58.033	11.6	

existed between the experimental and the control samples on the California Test of Basic Skills. No significant difference was also found to exist between the samples when the post-test (Form T) was administered. It can be concluded therefore, that the teaching methods used with the control sample to develop reading skills were as relevant as those used in the experimental sample in producing reading achievement on the California Test of Basic Skills. Achievement differences in reading were negible. The Cherry Hill Study Skills Program did not significantly raise eighth

grade students' reading comprehension over the teaching methods used with the control sample.

As noted in Table III, the results of the administration the Cherry Hill Study Skills pre-test with the samples

TABLE III

CHERRY HILL STUDY SKILLS PROGRAM TEST RESULTS

	N	Mean	SD	t
Cherry Hill Experimental pre-test	32	22.031	6.5	-1.3
Cherry Hill Control pre-test	30	21.90	6.6	
Cherry Hill Experimental post-test	32	47.062	7.7	187.9
Cherry Hill Control post-test	30	28.266	7.6	

produced data which were not significantly different.

However, the results of the post-test indicated a dramatically significant difference between the two samples. The Mean difference of 187.9 raw score points was significant below the .01 level.

CONCLUSIONS AND IMPLICATIONS

While the Cherry Hill Study Skills Program did not significantly increase eighth grade students' reading comprehension, the program was highly effective in developing their study skills: outlining, taking notes, taking tests, listening skills, finding the main idea, inferences, following directions, analogies, essay terms and parts of a textbook.

A further study should be conducted to determine students' ability to read in the content area since study skills relate directly to those areas.

As an effective program, the Cherry Hill Study Skills Program could be utilized by other school districts with positive results.

Cottier and Koehler (1978) in order to answer parent inquiries about ways to help children at home and to refute or support assumptions regarding students' mastery of study skills devised a survey instrument to assess how well ninth grade social studies students took and used notes, used the organizational patterns of a written selection, prepared for tests, and whether they were aware of test-taking strategies. Responses to the survey instrument indicated that study skills, particularly note-taking and awareness of patterns of organization had not been acquired. Cottier and Koehler feel that the difference between "A" and "C" students may not be intelligence or even motivation, but may be how well they have mastered efficient study skills as they progress through school.

Starks (1980) believes that students don't usually listen to lectures on effective ways of studying or read even the most cleverly written textbook on studying. The result is little enthusiasm for studying or for transfer of study techniques to academic classes. Starks discusses some techniques to make study skills relevant and interesting to college and high school students, such as getting students actively involved by having the students themselves determine how study skills work best for them, by using materials that are relevant to their academic classes and by getting them

to apply critical thinking to the learning process.

Mattleman and Blake (1977) feel that an essential component of becoming a literate person is being able to use study skills effectively. Those who are able to apply these skills at an early age should have less difficulty living in our complicated world. Those who have not mastered them may find it difficult to cope as a student, a worker, or a functioning literate person. Faced with this situation one might correctly refer to these skills not as study skills but as survival skills. Their work suggests that the most effective way to learn study skills is to learn them in a functional setting.

Hansell (1978) feels that the essence of comprehending what one reads lies in relating ideas. To comprehend, one must be able to identify an author's ideas and fit them together as pieces of a puzzle; the completed puzzle shows the separate identity of each idea as well as the part each idea plays in the total picture.

Outlining a section of text is one way students can identify separate ideas and how they fit together. He feels that the major problem that teachers face with students who can't outline is not teaching outline format, but teaching students to understand the material they have read.

One way to help students identify and interrelate

ideas is to give them carefully designed tasks called post organizers, Barron and Stone (1973) or arrays, Kraft (1977). An array is essentially a free form outline which requires that students decide how to arrange key words and phrases to show how the author fit them together. Barron and Stone report that active student involvement in preparing arrays aided comprehension and retention of material read, as tested on one topic. Kraft found that for college freshmen, arrays reflected knowledge of a passage and correlated highly with standardized test scores.

Hansell (1977) made a study to determine if continued exposure to array tasks could help develop students' ability to outline a passage from text following practice in making arrays and outlines. Also, since the experimental students were trained in the final stages of the experiment to outline their own textbooks, they should be able to transfer the training to other everyday school tasks.

The usefulness of the arraying and outlining tasks is that they focus on the primary process of comprehension - identifying relevant ideas and fitting these into a meaningful pattern.

This sort of post organizer has shown effective as a way to help students remember as assignment by Barron and Stone (1973) as well as improving a students' ability to

outline.

Khan and Roberts (1969) did a study to investigate and compare the validity of a modified version of the Survey of Study Habits and Attitudes (SSHA), developed by Brown and Holtzman (1953) for predicting standardized achievement test scores as well as teachers' marks at the Grade 8 level. For general comparison purposes, relationships between a standardized aptitude test and each of two achievement criteria a) the overall average of final year marks as assigned by the students' teachers and b) the scores on three standardized achievement tests were used.

They found that although aptitude variables are significant predictors of scholastic achievement, a reasonable amount of criterion variance remained unexplained. They conclude that since some SSHA factors do seem to measure significant non-intellectual variables they thus deserve more systematic investigation in natural and experimental settings.

Tarpay and Harris (1979) did a study on college students study behaviors and academic achievement as measured by end-of-term grade point average (GPA) and the Survey of Study Habits and Attitudes (SSHA) developed by Brown and Holtzman (1966).

Comparisons were made between students who took study

skills and those who requested it but were unable to enroll because of class size. Results of their study indicated a significant increase in grade point average and study habits and attitudes for those who took the course.

Shepps and Shepps (1971) did a study using the Survey of Study Habits and Attitudes (SSHA) to examine the relationship of sixth grade study habits and school attitudes to achievements in reading and mathematics. By further grouping of the the children by sex, it was revealed that in the case of boys only, the total SSHA score and the attitudes subtest predicted reading achievement. In the case of the girls, neither of these predicted the criterion, although the attitudes subtest did predict a different criterion: mathematics achievement. The implications of these findings were examined with respect to the early diagnosis of school difficulties as well as from the point of view of further development of the SSHA as a research instrument.

Stoodt and Balbo (1979) did a study on the integration of study skills and content information in a twelfth grade economics class. This study incorporated three factors to aid instruction in the secondary schools - assistance for the content teacher in teaching study skills, opportunities for the transfer of study skills to a content area, and opportunities to develop study skills in general. The

results of this study suggest that the integration of study skills instruction with content leads to greater mastery of both study skills and content and that improvement of study skills appears to enhance learning in the content area. Also, students who are not taught study skills, apparently do not identify and learn these skills independently. The authors believe that reading specialists and content teachers can and should work together to provide instruction in those study skills which will enable students to become independent learners.

Katz and Wright did a study that was designed to evaluate a Communication Skills course which emphasized reading, speaking, vocabulary development and a variety of study skills, and to see if they could find an academic or behavioral index of differences between a group taking this course and a similar group of students who did not take the course. Students who took Communication Skills improved the percentage of courses passed as opposed to those who did not take the course. However, students who had taken the Communication Skills did not increase their ratio of passed to attempted courses after four semesters of work. The implication of this pattern is that these students needed continuing support of the sort they had in the Communication Skills course in order to maintain gains

over their college years.

Aron (1978) feels that to make the open admissions policy in American community colleges viable, reading and study skills programs are a necessity. Without them, the open door would become a revolving door for the marginal student.

Pauk (1973) feels that if a college student is having trouble with his academic work, the chances are exceedingly great that his trouble stems from his not knowing how to study, rather than his not knowing how to read. Pauk feels that study skills can teach students to become self-learners (self-teachers). He states that many well-intentioned college reading programs try to help students achieve academic success by teaching speed reading, thus spending valuable time on such questionable techniques as eliminating vocalization and stretching eye fixations. The catch is that none of these techniques has anything to do with the principles of learning, with self-learning or with academic success. Speed reading is not the way to the goal. Study skills is.

Page (1969) found in her studies that students need more structured help in applying critical reading and study skills to learning the content area of history, and that by exposing them to these techniques they will eventually

learn more effectively.

Hawkins (1977) found that many studies revealed that on the secondary and college levels, instruction in reading and study skills are often combined- Herber (1965), Williams (1976), and Bedillion (1974).

Ellis (1965) also encourages the total integration of reading study skills before the college level.

Hawkins did a study to see if any correlation existed between reading achievement and study achievement. In this study reading achievement and study achievement failed to correlate significantly. However, further analysis of both the reading and study skills tests of the McGraw-Hill Basic Skills System (MHBSS) reveals that different skills are being measured. The study skills test concentrates on four specific areas: underlining, library skills, problem solving, and general study skills information. The reading test, on the other hand, concentrates on reading rate, reading comprehension and retention, and skimming and scanning. The diversity and mismatch of the skills being measured may be the reason for the insignificant relationships found in the study.

The belief that reading and study skills should be taught together has not been disproven by the limited findings of the study. The findings made by Hawkins suggest

that the range of skills covered by reading and study skills courses offered by colleges can't be easily defined nor for that matter easily tested.

Weigel and Weigel (1967) found that undergraduate students knew effective study skills but seldom employed them. Specifically, when students were asked to respond to the Survey of Study Habits and Attitudes (SSHA) as an ideal student, their scores fell at the 94th percentile of the national norm. This was in marked contrast to their scores at the 30-40th percentile when responding to the SSHA as themselves. It was therefore concluded that since students had an adequate knowledge of study skills, the academic improvement shown by students who were enrolled in study skills courses was perhaps due to unidentified factors related to the course rather than to improved knowledge of effective study techniques per se.

Robyak (1978) reveals that one of the most frequently reported problems of both high schools and college students is that they do not know how to study. He feels that since study skills are associated with academic performance, it is in the interest of both students and instructional personnel to provide students with instruction in effective study skills. The results of the discriminant function analyses made by Robyak support the notion of providing students with an

opportunity to enroll in a study skills program, although study skills instruction alone may not be sufficient. Both male and female study skills students differed from non-study skills students, but the most potent combination of discriminant variables was different for males and females. Since it appears that males and females enroll in study skills courses with different sets of academic management skills, differential treatment programs should be prescribed if these skills are to be increased. Special attention should be given to increasing the study skills of females, while psychological counseling may better meet the need of male study skills students. Counseling which focuses on methods of coping with the academic demands imposed by the university appears to be appropriate within the current study skills model, but more extensive counseling will require assistance from professionally trained counselors.

A study was made by Bodden, Osterhouse, and Gelso (1972) in an attempt to evaluate certain common uses of the Brown-Holtzman Survey of Study Habits and Attitudes (SSHA) in a college-level educational skills course. The uses investigated were a) a source of diagnostic feedback on student study habits, b) a criterion for judging course effectiveness and c) a combination of the feedback and criterion functions. The results of their study suggest that a test such as the SSHA

(or similar instrument) might be to identify that minority of students who actually do not know what constitutes good study habits, so that they can be supplied with appropriate information.

Aron, Helen. "A Community College Reading and Study Skills Program: What is it, What does it do?" Journal of Reading, vol. 22 (December 1978), pp. 231-235.

Barron, R.F. and V.F. Stone. "The Effect of Student Constructed Graphic Post Organizers upon Learning of Vocabulary Relationships from a Passage of Social Science Content." Paper presented at a National Reading Conference, 1973.

Bodden, L., Osterhouse, Robert and Gelso, Charles. "The Value of a Study Skills Inventory for Feedback and Criterion Purposes in an Educational Skills Course." Journal of Educational Research, vol. 65 (March 1972), pp. 309-311.

Brown, W.F. and Holtzman, W.H. "Study Attitude Questionnaire for Predicting Academic Success." Journal of Educational Psychology, vol. 46 (1955), pp. 75-84.

Clemens, H.M. and Oelke, M.C. "Factors Related to Reported Problems of Adolescents." Personnel and Guidance Journal, vol. 45 (1967), pp. 697-702.

Cottier, Susan J. and Koehler, Sheri A. "A Study Skills Unit for Junior High Students." Journal of Reading, vol. 21 (April, 1978), pp. 626-629.

Ellis, Henry C. The Transfer of Learning, New York: Macmillan, 1965, p.16.

Hansell, T. Stevenson. "Stepping Up to Outlining." Journal of Reading, vol. 22 (December, 1978), pp. 248-252.

Hawkins, Joesph A. "How Should Reading and Study Skills Test Scores Correlate?" Journal of Reading, vol. 20 (April, 1977). pp. 570-572.

Karlin, Robert. Teaching Reading in High School, 3rd edition Bobbs-Merrill Educational Publishing, Indianapolis, 1977.

Katz, Constance and Wright, Fred. "The Effects of a Reading and Study Skills Program on Academic Performance and Perserverance." Journal of General Education, vol. 29 (Summer, 1977), pp. 89-96.

Khan, S.B. and Roberts, Dennis M. "Relationships Among Study Habits and Attitudes, Aptitude and Grade 8 Achievement." Educational and Psychological Measurement, vol. 29 (Winter, 1969), pp. 951-955.

Kraft, R.A. "A Study of Grapho-Semantic Arraying by College Freshmen in Relation to Selected Measures of Reading Comprehension." Unpublished doctoral disseration, University of Virginia, Charlottesville, 1977.

LaVoie, Roland. "Program Overview: The Cherry Hill Study Skill Program." The Cherry Hill Study Skills Program, Cherry Hill, New Jersey.

Mattleman, Marciene S. and Blake, Howard E. "Study Skills: Prescriptions for Survival." Language Arts, vol. 54, no. 9 (November/December, 1977), pp. 25-27.

Page, Linda Turpin. "Reading and Study Skills in Junior High History." Reading Improvement, vol. 6 (Fall, 1969) pp. 41-2.

Pauk, Walter. "Study Skills! That's the Answer." Reading Improvement, vol. 10 (Winter, 1973), pp. 2-6.

Robyak, James. "Study Skills versus Non-Study Skills Students: A Descriminant Analysis." Journal of Educational Research, vol. 71 (January/February, 1978), pp. 161-166.

Roe, Betty. Reading Instruction in the Secondary School, revised edition, Rand McNally College Publishing Company, Chicago, 1978.

Shepps, Florence and Shepps, Ronald. "Relationship of Study Habits and School Attitudes Achievement in Mathematics and Reading." Journal of Educational Research, vol. 65 (October, 1971), pp. 71-73.

Starks, Gretchen A. "New Approaches to Teaching Study Skills in High School and College." Journal of Reading, vol. 23 (February, 1980), pp. 401-3.

Stoodt, Barbara D. and Balbo, Elvira. "Integrating Study Skills Instruction with Content in a Secondary Classroom." Reading World, vol. 18 (March, 1979), pp. 247-252.

Tarpey, Elizabeth A. and Harris, Jesse B. "Study Skills Courses Make a Difference!" Journal of College Student Personnel, vol. 20 (January, 1979), pp. 62-67.

Weigel, Richard and Weigel, Virginia M. "The Relationship of Knowledge and Usage of Study Skill Techniques to Academic Performance." Journal of Educational Research, vol. 61 (October, 1967), pp. 78-80.

APPENDIX

EXPERIMENTAL SAMPLE - RAW SCORES

	Otis Lennon	CTBS pre-test	CTBS post-test	Cherry Hill pre-test	Cherry Hill post-test
Y-1	96	60	55	18	54
Y-2	98	41	37	9	30
Y-3	92	60	50	26	46
Y-4	104	52	60	22	47
Y-5	81	29	50	16	37
Y-6	93	74	57	18	59
Y-7	104	60	64	18	56
Y-8	112	45	56	15	33
Y-9	77	36	43	13	41
Y-10	83	43	51	15	39
Y-11	99	64	68	18	36
Y-12	109	65	68	22	50
Y-13	97	44	56	23	40
Y-14	96	39	49	17	46
Y-15	104	54	65	26	49
Y-16	96	50	52	20	46
Y-17	99	62	63	20	37
Y-18	106	55	56	22	51
Y-19	93	55	54	28	46
Y-20	94	51	44	15	48

EXPERIMENTAL SAMPLE - RAW SCORES

	Otis Lennon	CTBS pre-test	CTBS post-test	Cherry Hill pre-test	Cherry Hill post-test
Y-21	96	59	61	19	53
Y-22	102	60	67	39	48
Y-23	87	53	48	24	40
Y-24	87	47	46	18	53
Y-25	101	53	59	35	54
Y-26	97	48	57	24	51
Y-27	116	70	74	34	57
Y-28	109	59	60	26	57
Y-29	92	32	50	24	53
Y-30	97	59	63	25	44
Y-31	97	64	68	30	60
Y-32	104	69	65	26	45

CONTROL SAMPLE - RAW SCORES

	Otis Lennon	CTBS pre-test	CTBS post-test	Cherry Hill pre-test	Cherry Hill post-test
X-1	100	65	59	24	26
X-2	94	55	46	24	34
X-3	97	56	49	20	18
X-4	95	58	64	21	35
X-5	89	55	49	16	26
X-6	106	78	81	36	39
X-7	92	45	61	10	27
X-8	106	54	66	19	24
X-9	84	48	53	15	17
X-10	100	50	43	10	18
X-11	90	56	53	27	29
X-12	113	81	84	39	40
X-13	103	62	78	23	19
X-14	89	48	58	19	25
X-15	110	68	66	28	20
X-16	107	60	75	28	22
X-17	94	53	57	20	28
X-18	101	61	57	28	43
X-19	94	58	59	27	27

CONTROL SAMPLE - RAW SCORES

	Otis Lennon	CTBS pre-test	CTBS post-test	Cherry Hill pre-test	Cherry Hill post-test
X-20	89	45	47	20	19
X-21	114	71	75	22	40
X-22	98	60	60	15	31
X-23	99	56	62	20	25
X-24	96	54	49	24	32
X-25	91	48	50	17	33
X-26	94	55	51	27	39
X-27	94	41	45	15	22
X-28	97	44	36	24	27
X-29	97	59	60	27	41
X-30	106	59	48	12	22